

FIG. 1A
(PRIOR ART)

FIG. 1B
(PRIOR ART)

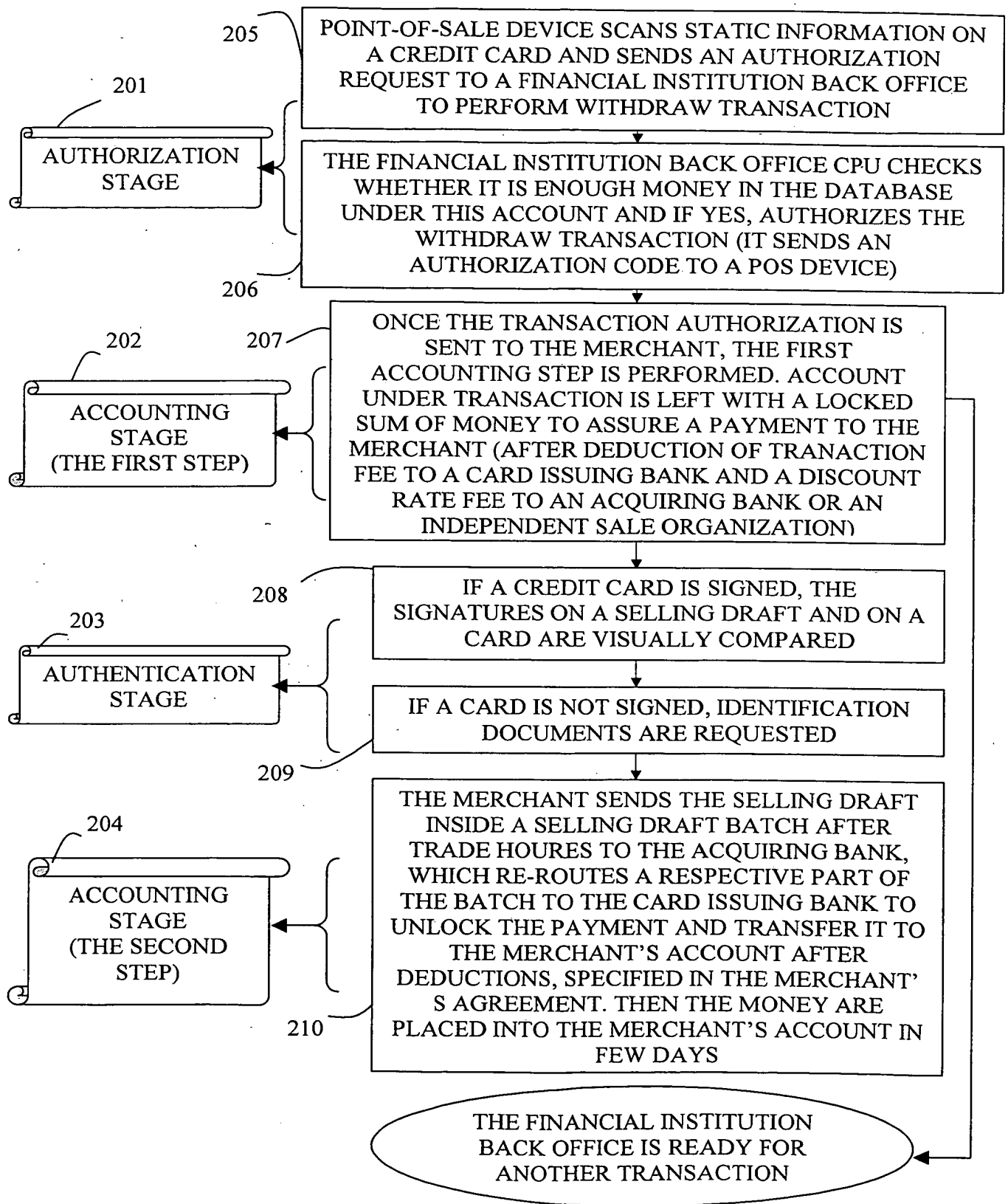


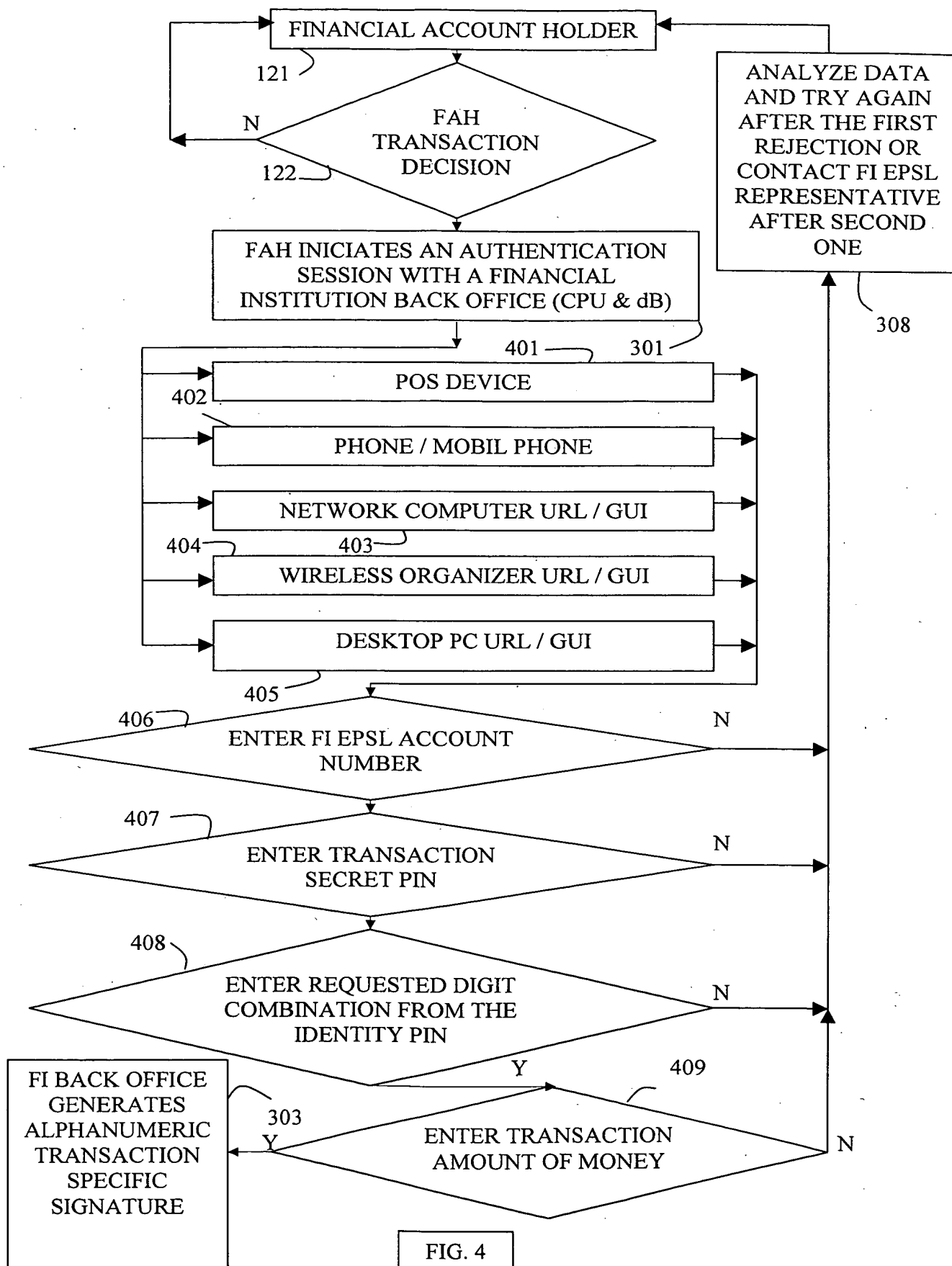
FIG. 2
(PRIOR ART)

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graph TD
    121[FINANCIAL ACCOUNT HOLDER (FAH)] --> 122{FAH TRANSACTION DECISION}
    122 -- N --> 121
    122 -- Y --> 301[FAH INITIATES AN AUTHENTICATION SESSION WITH A FINANCIAL INSTITUTION (FI) BACK OFFICE]
    301 --> 302{FI MAKING AUTHENTICATION DECISION}
    302 -- N --> 308[ANALYZE DATA AND TRY AGAIN AFTER THE FIRST REJECTION OR CONTACT FI EPSL REPRESENTATIVE AFTER SECOND ONE]
    302 -- Y --> 303[GENERATING ALPHANUMERIC FINANCIAL TRANSACTION (FT) SIGNATURE]
    303 --> 304{FAH SUBMITTING T-SIGNATURE TO THE FT COUNTERPART}
    304 -- N --> 121
    304 -- Y --> 305[MERCHANT (OR BANK TELLER) INITIATES AN AUTHORIZATION SESSION WITH A FINANCIAL INSTITUTION BACK OFFICE (CPU & dB)]
    305 --> 306{FI BACK OFFICE AUTHORIZATION DECISION}
    306 -- N --> 308
    306 -- Y --> 307[FI BACK OFFICE COMPLETES AN ACCOUNTING SESSION ONCE THE TRANSACTION IS AUTHORIZED]
    307 --> 309([THE TRANSACTION IS COMPLETED])
    308 --> 121

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FIG. 3



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graph TD
    Start([FAH INITIATES AN AUTHENTICATION  
SESSION WITH A FINANCIAL INSTITUTION  
BACK OFFICE (FIBO) (CPU & dB)]) --> 301
    Start --> 501[INTERRUPT  
AUTHENTICATION  
SESSION;  
TRANSACTION  
DENIED]
    301 --> 401[POS DEVICE]
    301 --> 402[PHONE / MOBIL PHONE]
    301 --> 403[NETWORK COMPUTER URL / GUI]
    301 --> 404[WIRELESS ORGANIZER URL / GUI]
    301 --> 405[DESKTOP PC URL / GUI]
    401 --> 504{ACCOUNT NUMBER  
REOUEST}
    402 --> 504
    403 --> 504
    404 --> 504
    405 --> 504
    504 -- Y --> 502[ACCOUNT NUMBER SEARCH  
PROGRAM AT FIBO CPU/dB  
VERIFIES IT AT FIBO dB]
    504 -- N --> 501
    502 --> 506{TRANSTATION PIN  
REOUEST}
    506 -- Y --> 503[TRANSACTION PIN VERIFICATION  
PROGRAM AT FIBO CPU VERIFIES IT  
AT FIBO dB]
    506 -- N --> 501
    503 --> 508{IDENTITY PIN  
SUBSET REOUEST}
    508 -- Y --> 505[IDENTITY PIN RANDOM SUBSET  
GENERATOR AT FIBO CPU  
VALIDATES IT AT FIBO dB]
    508 -- N --> 501
    505 --> 509{REQUESTED FT  
AMOUNT}
    509 -- Y --> 507[ACCOUNT CONSISTANCY PROGRAM  
AT FI CPU CHECKS WHETHER  
TRANSACTION IS POSSIBLE AT FI dB]
    509 -- N --> 501
    507 --> 510{FIBO CPU  
GENERATES  
ALPHANUMERIC  
TRANSACTION}
    510 -- Y --> 511[FIBO (CPU & dB) AUTHENTICATION  
SESSION IS COMPLETED AND  
ACCOUNTING SESSION IS BEGUN;  
THE AUTHENTICATION FILE IS  
GENERATED, TIME STAMPED AND  
PUT ON HOLD AT FIBO dB;  
CONCURRENTLY THE  
ALPHANUMERIC TRANSACTION  
SPECIFIC SIGNATURE IS SENT TO FAH]
    510 -- N --> 501
    
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FIG. 5

FIG. 5

MERCHANT / SELLER OR FI BANK TELLER	FI EPSL FINANCIAL ACCOUNT HOLDER	FI BACK OFFICE CPU	FI BACK OFFICE dB
	← → ACC# {XYZ}		← 601)
	→ W PIN		← 602)
	→ D PIN		← 603)
	→ W\$		← 604)
	→ D\$		← 605)
	→ ID PIN		← 606)
	← →	← (W/D)#_GEN(ACC#{XYZ}, (W/D)_PIN, ID_PIN, (W/D)\$, TX1) →	← 607)
		T_INT((W/D)#_GEN(ACC#{XYZ}, (W/D)_PIN, ID_PIN, (W/D)\$, TX1))	← 608)
		ACC#{XYZ}_TX1	← 609)
		ACC#{XYZ}_TX2	← 610)
BUS#	→		← 611)
T-AMOUNT	→		← 612)

FIG. 6

EPSL PROTOCOL ITEMS DELIVERED TO FI BACK OFFICE (CPU & dB)	AUTHEN- TICATION SESSION	AUTHO- RIZATION SESSION	ACCOUN- TING SESSION
ACC#{XYZ}	+	+	-
(W / D)_PIN	+	-	-
ID_PIN SUBSET	+	-	-
(W / D)\$	+	-	-
(W/D)#_GEN(ACC#{XYZ}, TX1)	+	+	+
T_INT(ACC#{XYZ}, TX1)	+	-	-
ACC#{XYZ}_TX1	+	+	+
ACC#{XYZ}_TX2	-	+	+
BUS#	-	+	+
T-AMOUNT	-	+	+

FIG. 8

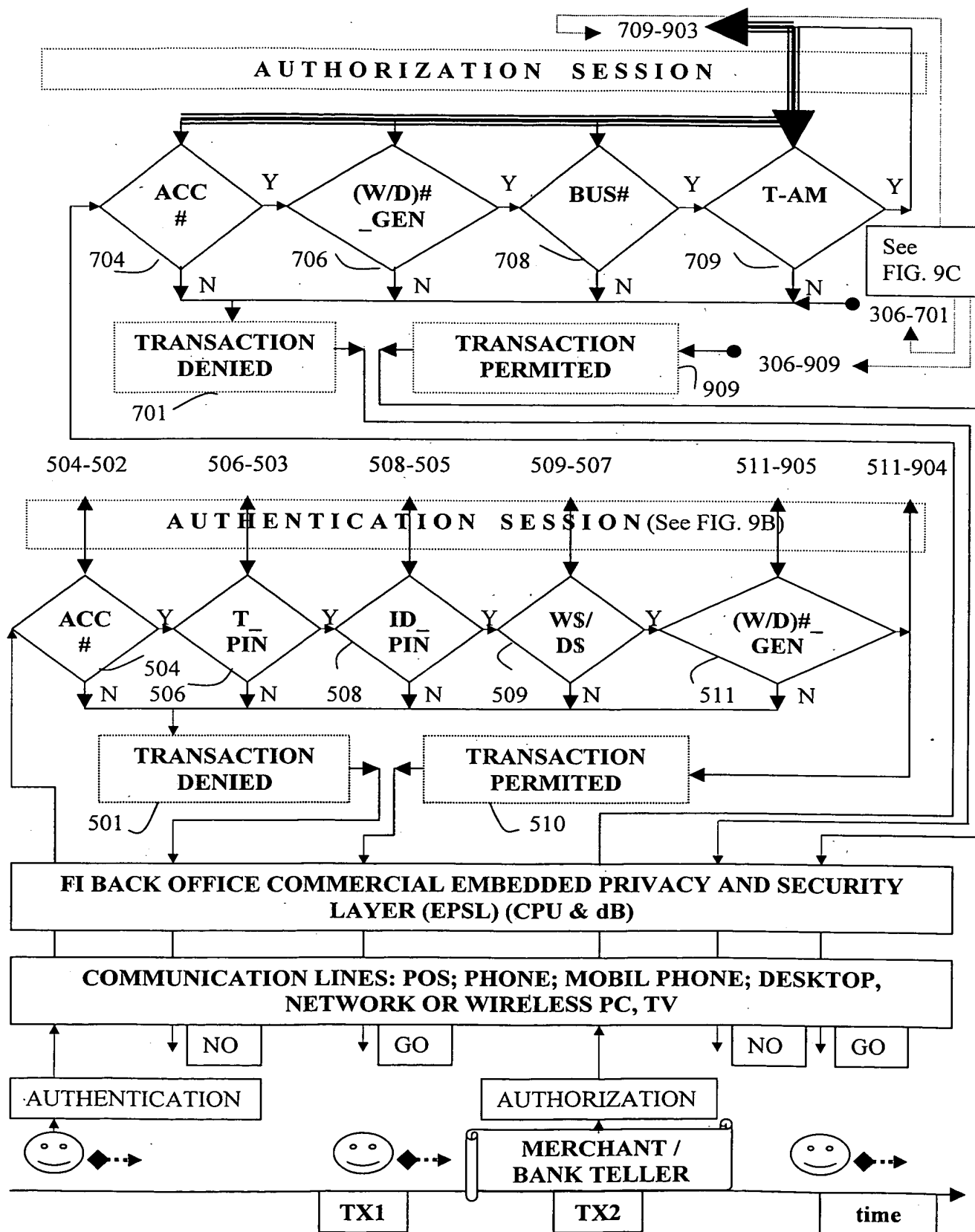


FIG. 9A

FIG. 9B illustrates the FI BACK OFFICE COMMERCIAL EMBEDDED PRIVACY AND SECURITY LAYER (EPLS) (CPU & dB) architecture. The diagram shows a central processing unit (CPU) and database (dB) layer at the bottom, which interfaces with various back-office components. The components and their connections are as follows:

- FI BACK OFFICE GLOBAL CLOCK (902)**: Receives signals from TX1 and TX2.
- FI BACK OFFICE WATCHDOG (901)**: Receives signals from TX1 and TX2.
- AUTHENTICATION FILE GENERATOR (904)**: Receives signals from TX1 and TX2.
- TRANSACTION SIGNATURE GENERATOR (905)**: Receives signals from TX1 and TX2.
- FI BACK OFFICE ACCOUNT CONSISTANCY PROGRAM (507)**: Receives signals from TX1 and TX2.
- IDENTITY PIN RANDOM SUBSET GENERATOR (503)**: Receives signals from TX1 and TX2.
- TRANSACTION PIN VERIFICATION (505)**: Receives signals from TX1 and TX2.
- ACCOUNT NUMBER SEARCH PROGRAM (502)**: Receives signals from TX1 and TX2.

The components are connected to a central processing unit (CPU) and database (dB) layer at the bottom, which is labeled **FI BACK OFFICE COMMERCIAL EMBEDDED PRIVACY AND SECURITY LAYER (EPLS) (CPU & dB)**. The diagram also includes a reference to **See FIG. 9C** and **See FIG. 9A**.

FIG. 9B

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graph TD
    TX1[TX1]
    TX2[TX2]
    902[FI BACK OFFICE GLOBAL CLOCK PROGRAM]
    901[FI BACK OFFICE WATCHDOG PROGRAM]
    903[AUTHORIZATION FILE GENERATOR]
    703[TRANSACTION SIGNATURE VERIFICATION PROGRAM]
    705[BUSINESS ID VERIFICATION PROGRAM]
    707[ACCOUNTING SESSION VERIFICATION PROGRAM]
    906[/UNIX / WINDOWS NT FILE CREATED @TX2  
ACC#{XYZ}_TX2  
~~~~~  
ACC#,  
(W/D)#_GEN,  
BUS#, T-AM/]
    908{T-SIGN VERIF}
    306{ACC-VERIF}
    306_701[306-701]
    709_903[709-903]
    306_909[306-909]
    EPSL[FI BACK OFFICE COMMERCIAL EMBEDDED PRIVACY AND SECURITY LAYER (EPSL) (CPU & dB)]

    TX1 --> 902
    TX2 --> 902
    TX1 --> 903
    TX2 --> 903
    901 --> 906
    906 --> 908
    908 -- Y --> 306
    908 -- N --> EPSL
    306 -- Y --> 306_701
    306 -- N --> EPSL
    306_701 --> 709_903
    709_903 --> 306_909
    306_909 --> EPSL
    EPSL --> 902
    EPSL --> 901
    EPSL --> 903
    EPSL --> 703
    EPSL --> 705
    EPSL --> 707
  
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FIG. 9A

FIG. 9C